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(54) A turbine-driven rotary sole-massaging device

(57) A turbine-driven rotary sole-massaging device including a turbine 3 with a pair of main shafts 34, and a left and a right roller devices slowly driven by the turbine, the roller devices being composed of multiple fixing disks 41 and massage wheels 44 disposed on the circumference of the fixing disks, the fixing disks being fitted on the pair of main shafts of the turbine whereby the turbine drives the fixing disks, making the massage wheels rotate along with the fixing disks so that the massage wheels can stimulate the foot sole of a user to achieve physical therapy effect.

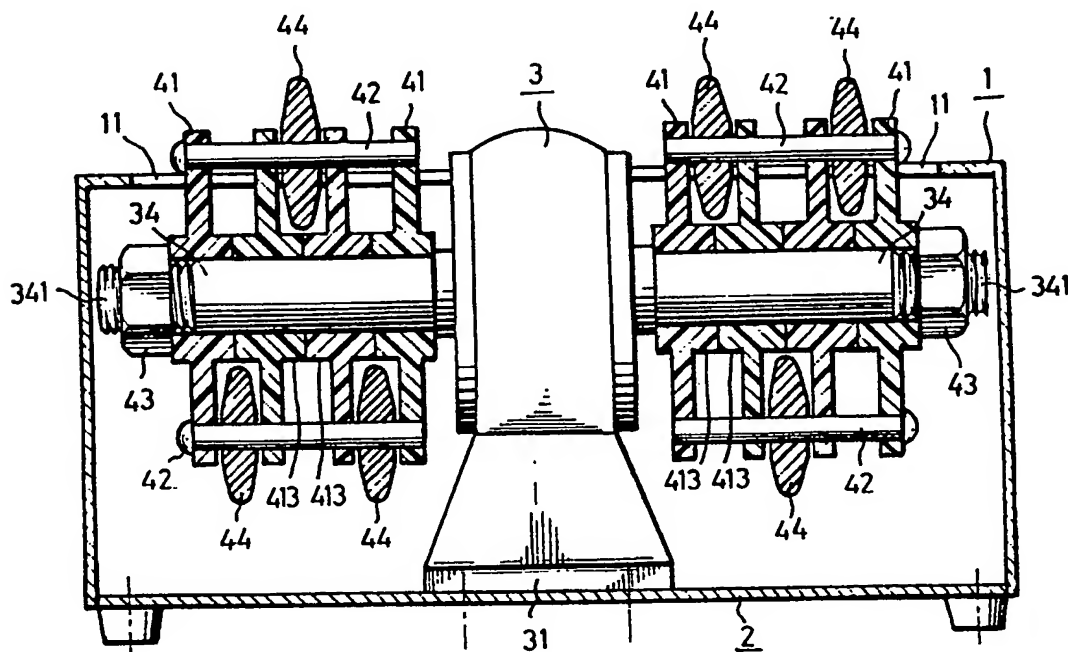


FIG. 3  
( SECTION: X-X' )

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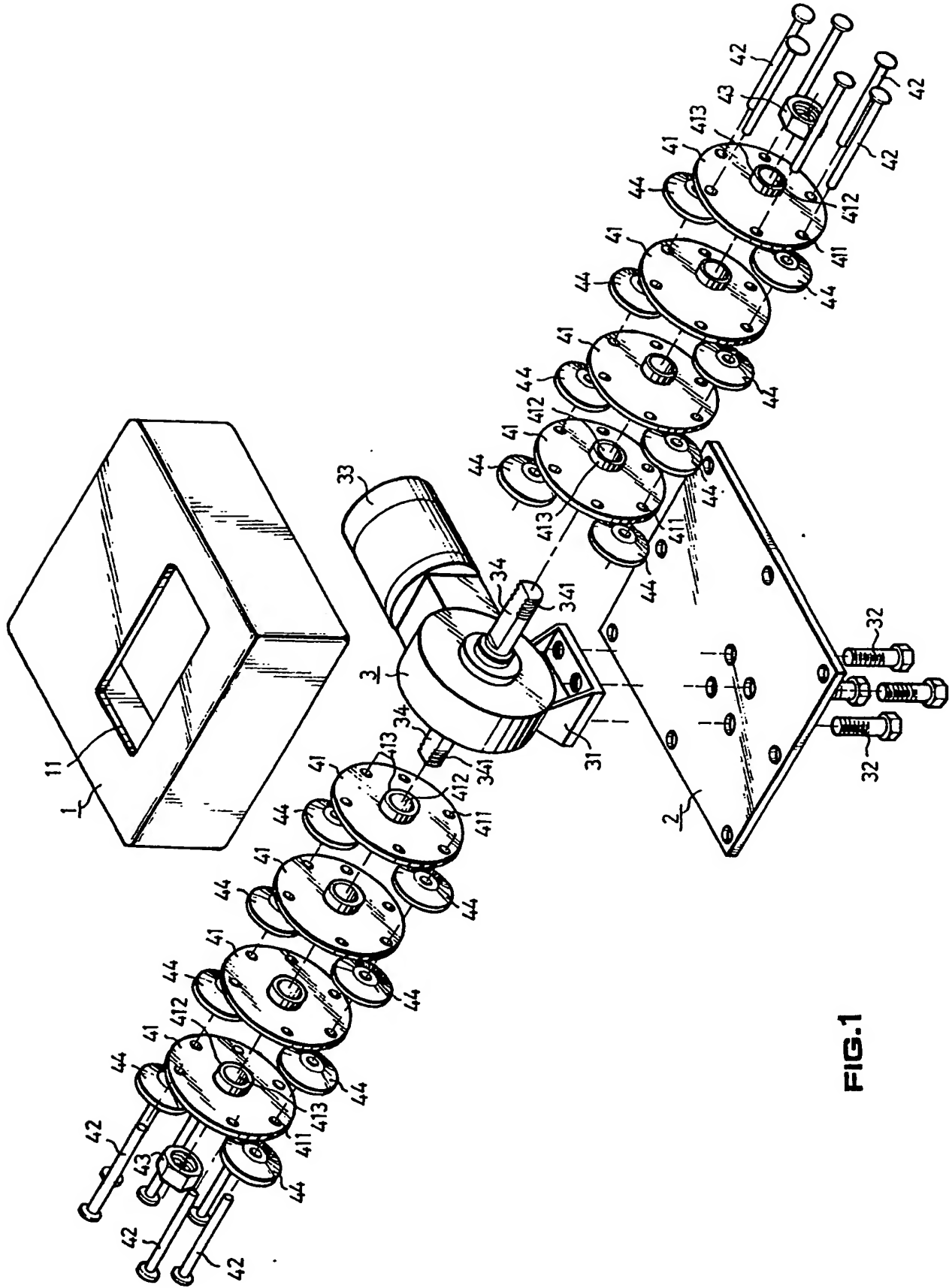


FIG.1

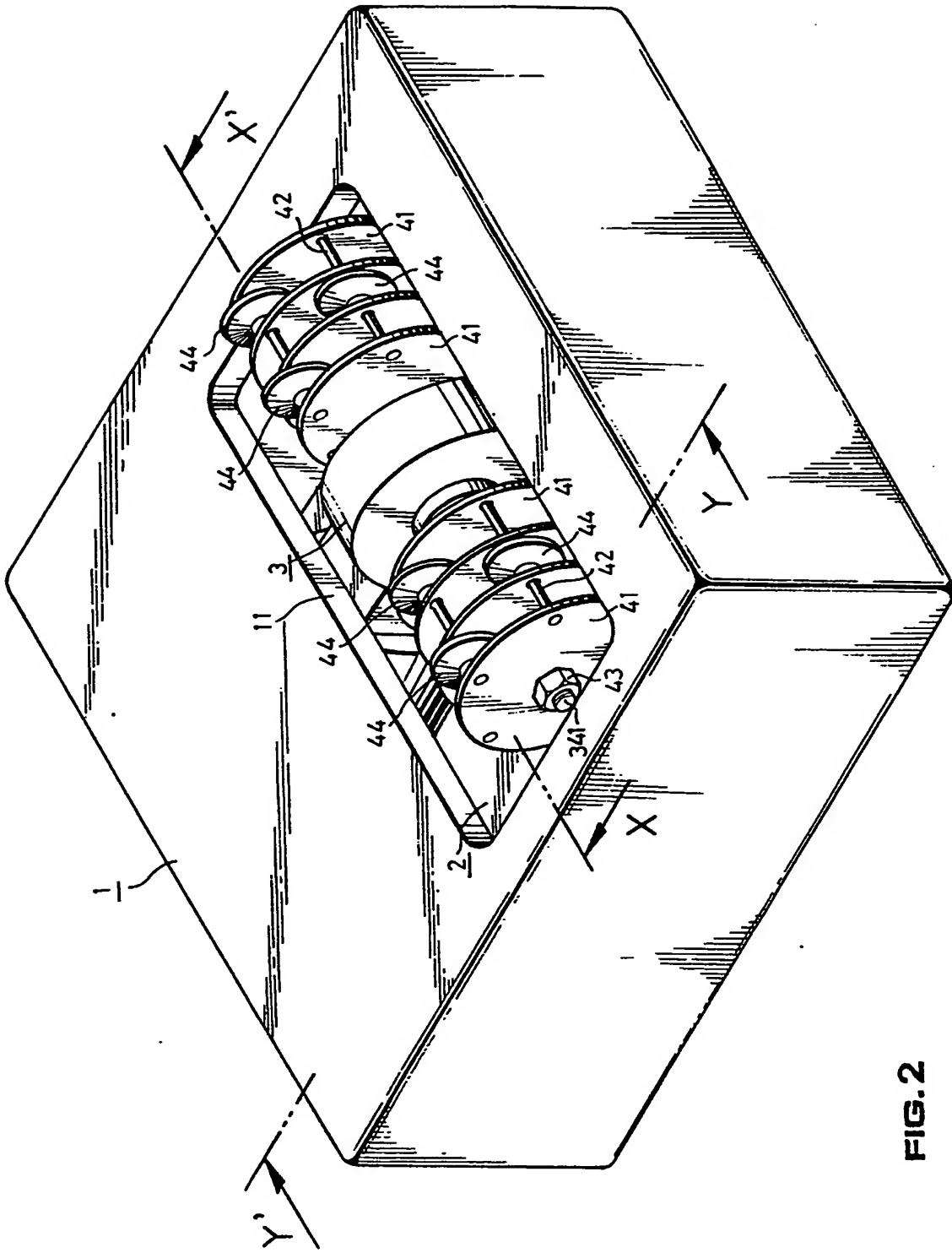
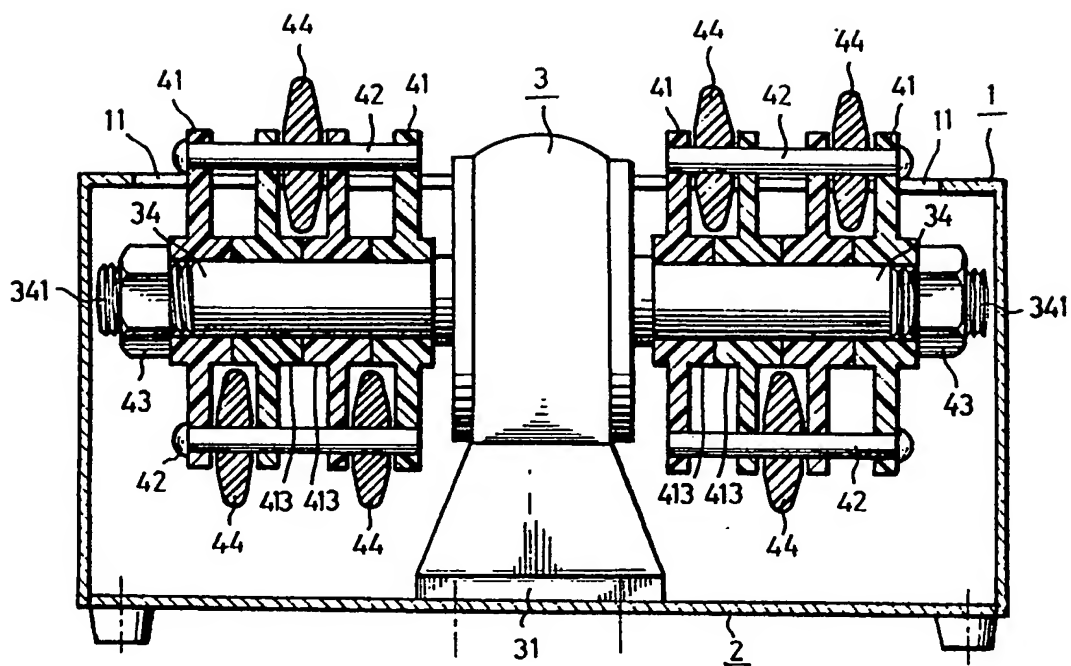
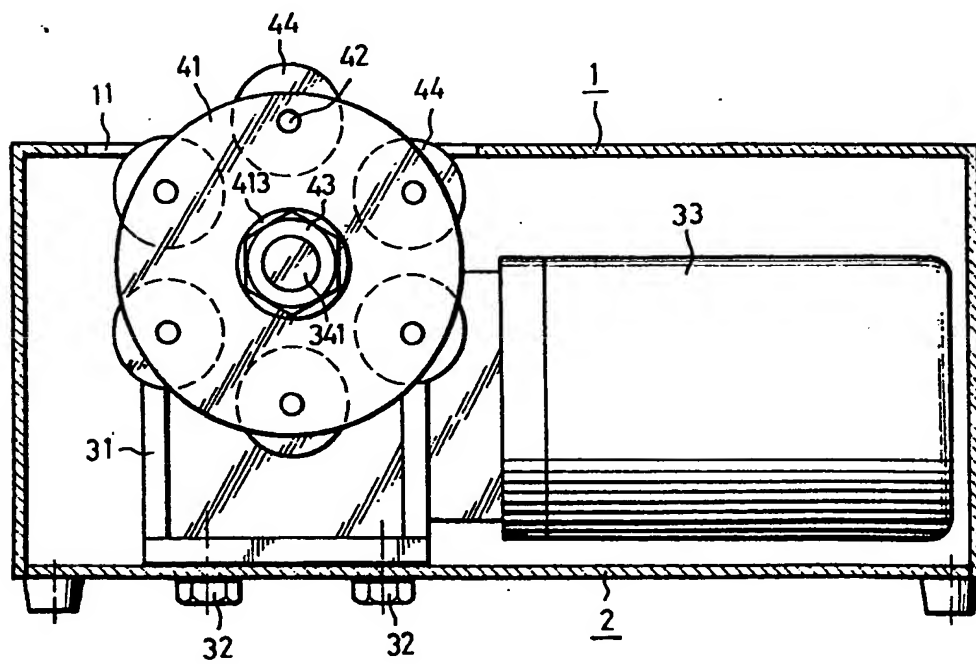


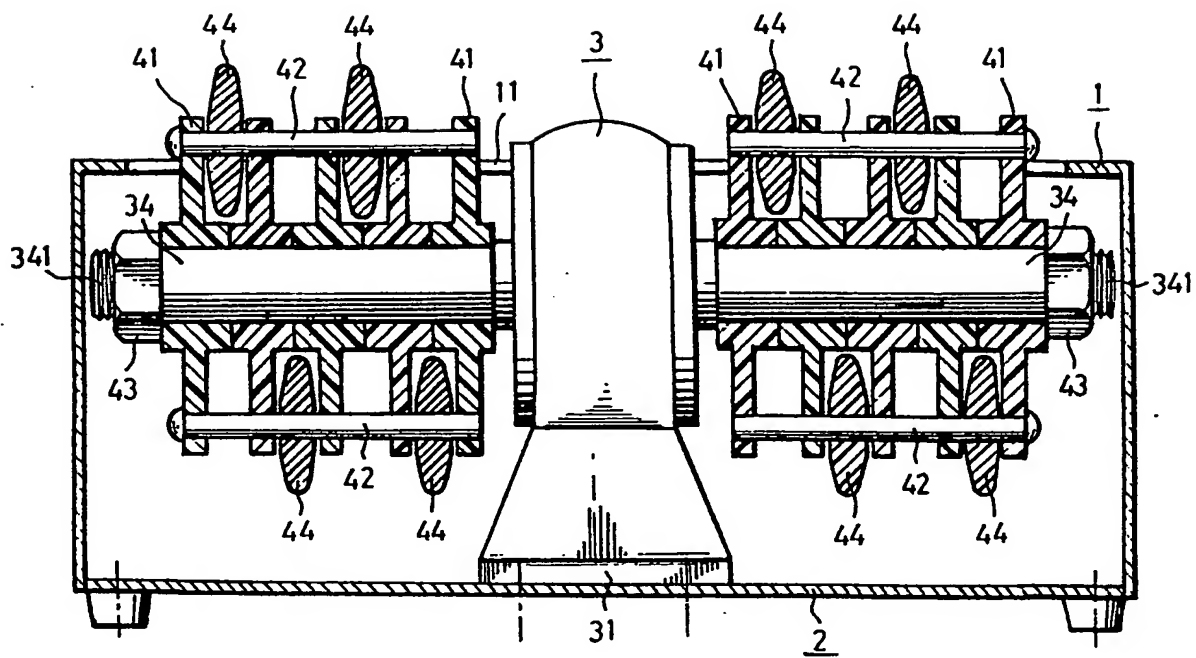
FIG. 2



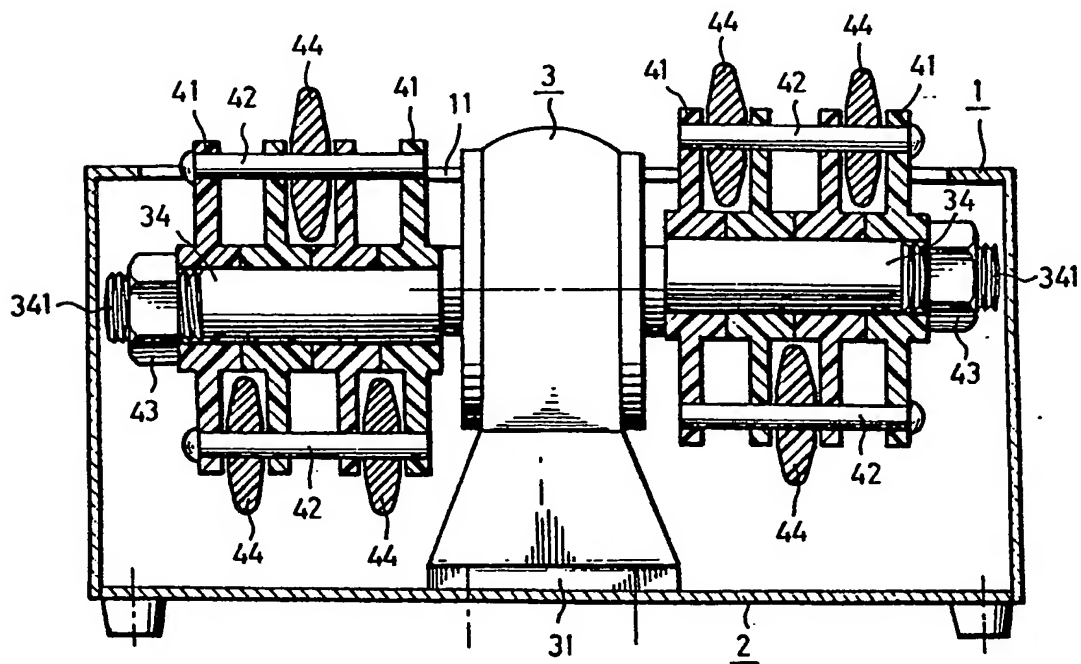
**FIG. 3**  
( SECTION: X-X' )



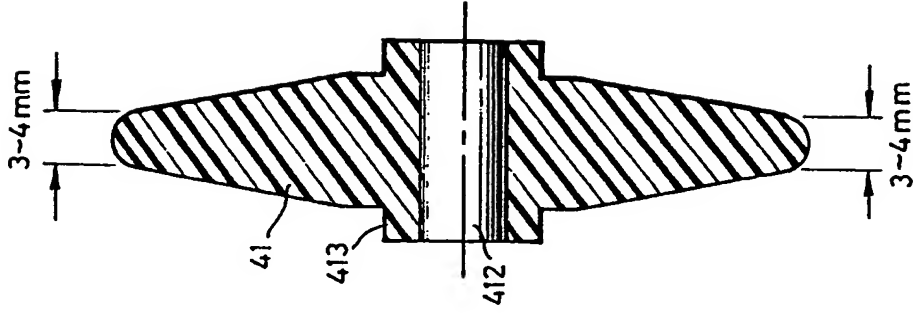
**FIG. 4**  
( SECTION: Y-Y' )



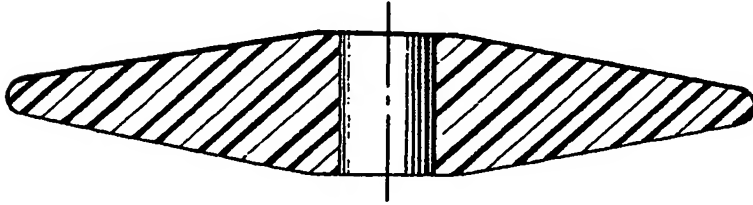
**FIG.5<sup>c</sup>**



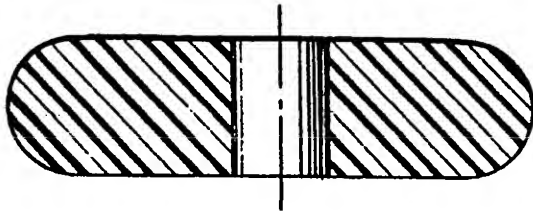
**FIG. 6**



**FIG. 7 - 3**



**FIG. 7 - 2**  
(PRIOR ART)



**FIG. 7 - 1**  
(PRIOR ART)

## A turbine-driven rotary sole-massaging device

### Background of the Invention :

The present invention relates to a turbine-driven rotary sole-massaging device which can stimulate the vital points and nerves in the foot sole to achieve a physical therapy effect.

Conventional rotary sole-massaging device employs a reducing motor and a gear which cooperates with a chain to drive another gear. The gear is coaxial with the main shaft of the motor and multiple fixing disks are fitted on the main shaft at equal intervals. Between each two fixing disks is disposed a massage wheel. When the reducing motor drives the gear to rotate, the main shaft, fixing disks and massage wheels also rotate 360 to massage the foot sole of a user for achieving physical therapy effect.

In such driving operation, the motor is connected with the gear while the gear is connected with another gear through a chain so that when used, quite loud noise is created and the sole-massaging device often stops due to insufficient power of the motor.

Moreover, after a period of use, the chain often becomes loose and slips away.

Also, too smooth circumference of the massage wheel will acquire less massaging effect, while too sharp circumference of the massage wheel will make the user feel painful during operation so that the thickness of the circumference of the massage wheel should be appropriately designed.

### Summary of the Invention

It is an object of this invention to provide a turbine-driven rotary sole-massaging device including a turbine disposed at a central portion of the device and provided with a pair of

main shafts. Multiple fixing disks are fitted on the main shafts at equal intervals and multiple insert pins go through the circumferences of the fixing disks at equal angles. One or more massage wheels are fitted on the insert pins. The thickness of the circumference of the massage wheel is preferably 3-4 mm.

According to the above arrangement, the turbine can accurately drive the massage wheels without making noise. The pair of main shafts are identically loaded and the turbine is disposed at a central portion so that stability and balance are acquired.

The present invention can be best understood through the following description and accompanying drawings wherein :

Brief Description of the Drawings

Fig.1 is a perspective exploded view of this invention ;

Fig.2 is a perspective assembled view of this invention ;

Fig.3 is a front sectional view thereof ;

Fig.4 is a side sectional view thereof ;

Fig.5 is a sectional view of a concentric embodiment of this invention ;

Fig.6 is a sectional view of an eccentric embodiment of this invention ;

Fig.7-1 is a sectional view of a prior massage wheel ;

Fig.7-2 is a sectional view of another prior massage wheel ;  
and

Fig.7-3 is a sectional view of the massage wheel of this invention.

Detailed Description of the Preferred Embodiment

Please first refer to Fig.1 The present invention includes a cover 1 having a rectangular opening 11 and a bottom board 2. A turbine 3 is disposed on the bottom board 2 and received in the cover 1. The turbine 3 has a base 31 secured to the bottom board 2



rotarily driven by an electromagnet core seat 33. Multiple circular fixing disks 41 are fitted on the main shafts 34. In Fig.1, four fixing disks 41 are disposed. However, five, six or more than six fixing boards 41 can also be disposed. Four or five fixing disks 41 are preferred.

Along the circumference of the fixing disk 41 are formed a plurality of small holes 411. Insert pins 42 go through the small holes 411 to associate the fixing disks 41 together. A shaft hole 412 is formed at the central portion of the fixing board 41 for receiving the main shaft 34 of the turbine 3. After the main shaft 34 extends through the shaft holes 412, nut 43 is screwed on a thread end 341 of the main shaft 34 so as to fix multiple fixing disks 41 thereon to form a left roller device and a right roller device.

One or two massage wheels 44 are fitted on the insert pin 42. The more fixing disks 41 are disposed, the more massage wheels 44 are fitted on the insert pin 42. The massage wheels 44 are cross arranged at equal intervals.

Please now refer to Fig.2. A part of the left and right roller devices and the turbine 3 is exposed outside the opening 11 of the cover 1 whereby when used, two feet of a user are placed on the left and right roller devices and the massage wheels 44 will massage the feet to achieve a physical therapy effect.

As shown in Fig.3, multiple fixing disks 41 are fitted on the main shaft 34 and hub portions 413 of the fixing disks 41 abut against one another. Each insert pin 42 is fitted with one or two massage wheels 44 which are cross arranged at equal intervals.

As shown in Figs.4,5, six or more insert pins 42 axially go through a fixing disk 41 and every massage wheels 44 protrude beyond the cover 1 through the rectangular opening 11 thereof. By means of

the protruding massage wheels 44 and the recesses formed therebetween, the nerves and vital points in the foot sole can be stimulated to achieve physical therapy effect.

15 Fig.6 shows another embodiment of this invention, wherein the main shafts 34 of the turbine 3 are eccentrically disposed so that the massage wheels 44 will in turn move up and down to achieve a better massage effect.

100 Figs.7-1 to 7-3 shows three different massage wheels 44. In Fig.7-1, the circumference of the massage wheel 44 is too smooth with larger contact area so that such massage wheel 44 can not effectively stimulate the deep vital point in the foot sole. In Fig. 7-2, the circumference of the massage wheel 44 is too sharp with smaller contact area so that such massage wheel 44 will make the user feel painful when massaged. Fig.7-3 shows the massage wheel 105 44 of the present invention in which the thickness of the conic circumference is 3-4 mm so that this massage wheel 44 can stimulate deep vital points without causing pain.

The advantages of this invention are as follows :

- 110 first, the turbine driving operation is quiet ;
- second, the turbine is disposed in the central portion of the massage device to acquire stability and balance ;
- third, direct driving is replaced for the indirect driving ;
- fourth, the main shafts of the turbine can be eccentrically disposed or concentrically disposed alternatively ; and
- 115 fifth, the thickness of the circumference of the conic massage wheel is 3-4 mm so that a good massage effect can be achieved, and this massage device is suitable for all ages of persons.

CLAIMS:

1. A turbine-driven rotary sole-massaging device comprising a cover, a bottom board, a turbine, a left and a right roller means each of which is composed of multiple fixing disks, message wheels and insert pins, said sole-massaging device being characterized in that said turbine is disposed on a central portion of said bottom board and said turbine has a pair of main shafts each of which has a thread end whereby multiple fixing disks are fitted on said main shafts and said insert pins go through said fixing disks at equal intervals, said message wheels being fitted on said insert pins in a cross arrangement, a nut being screwed on said thread end of said main shaft to fasten fixing disks to said main shaft.

2. A sole-massaging device as claimed in claim 1, wherein the radial section of said message wheel is conic and the thickness of the circumference of said message wheel is 3-4 mm.